

We claim:

1. A method operative to include caller location information in information made available to user equipment of a called party, the method comprising:

- receiving a call request from the calling party;
- extracting called party identification information from the call request;
- determining that the called party subscribes to a caller location service based on the extracted called party identification information;
- determining a latitude and longitude of the calling party;
- determining a common description of a location of the calling party based on the latitude and longitude;
- including the common description of the location of the calling party in a message; and
- transmitting the message including the common description of the location to the user equipment of the called party.

2. The method of claim 1 wherein determining that the called party subscribes to a caller location service comprises:

- accessing user subscription information of a subscriber database of the called party.

3. The method of claim 1 wherein determining a latitude and longitude of the calling party comprises:

- determining that the user equipment of the calling party includes a GPS receiver; and
- requesting GPS coordinates from the user equipment of the calling party.

4. The method of claim 1 wherein determining a latitude and longitude of the calling party comprises:

- determining that the user equipment of the calling party does not include a GPS receiver; and
- requesting coordinates of the calling party user equipment from a reference cell cite of the user equipment of the calling party.

5. The method of claim 1 wherein determining a latitude and longitude of the calling party comprises:

determining that the user equipment of the calling party does not include a GPS receiver; and
requesting coordinates of the calling party user equipment be determined by cellular triangulation.

6. The method of claim 4 further comprising:

transmitting a first PSMM_Request message from a first cell site to the user equipment of the calling party;
transmitting a first response to the first PSM message;
determining a first delay from the first response;
transmitting a second PSMM_Request message from a second cell site to the user equipment of the calling party;
transmitting a second response to the second PSM message;
determining a second delay from the second response;
transmitting a third PSMM_Request message from a third cell site to the user equipment of the calling party;
transmitting a third response to the third PSM message;
determining a third delay from the third response; and,
determining a relative position of the user equipment of the calling party to the first, second and third cell sites based on the first, second and third delays.

7. The method of claim 4 further comprising:

transmitting a plurality of PSMM_Request messages from a plurality of cell sites to the user equipment of the calling party;
transmitting a plurality of responses to the plurality of PSM messages;
determining a plurality of delays from the plurality of responses; and,
determining a relative position of the user equipment of the calling party to the plurality of cell sites from the plurality of delays.

8. The method of claim 6 further comprising
calculating an absolute position of the user equipment of the calling party from
the relative position of the user equipment and known positions of the first second and third
cell sites.

9. The method of claim 7 further comprising
calculating an absolute position of the user equipment of the calling party from
the relative position of the user equipment and known positions of the plurality of cell sites.

10. The method of claim 3 wherein determining a common description of a
location of the calling party comprises:
receiving the GPS coordinates; and
using the GPS coordinates as an index into a common location description
database to determine at least one of an address, a city name, and a distance and heading from
a landmark.

11. The method of claim 4 wherein determining a common description of a
location of the calling party comprises:
receiving the coordinates; and
using the coordinates as an index into a common location description database
to determine at least one of an address, a city name, and a distance and heading from a
landmark.

12. The method of claim 1 further comprising :
verifying that the calling party is included in a list of potential calling parties
for which the called party desires location information.

13. A method operative to provide caller location information to user equipment
of a called party, the method comprising:
receiving a call request from the calling party;
extracting called party identification information from the call request;
determining that the called party subscribes to a caller location service based
on the extracted called party identification information;
determining if the user equipment of the calling party is GPS enabled;

requesting GPS coordinates from the user equipment of the calling party if the user equipment of the calling party is GPS enabled;

requesting cellular triangulation services be used to generate location information regarding the user equipment of the calling party if the user equipment of the calling party is not GPS enabled;

determining a common description of a location of the calling party based on the GPS coordinates or the generated location information;

including a representation of the common description of the location in a caller ID field of a message; and

transmitting the message to the user equipment of the called party.

14. The method of claim 13 further comprising:
extracting calling party user equipment identification information from the call request;

retrieving a list of potential calling party user equipment for which the called party desires location information;

comparing the extracted calling party user equipment identification information to entries in the list of potential calling party user equipment; and

determining that one of the entries in the list matches the extracted calling party user equipment identification information.

15. The method of claim 13 wherein determining that the called party subscribes to a caller location service based on the extracted called party identification information comprises:

querying a subscriber database associated with the called party; and

retrieving location feature subscription information regarding the called party.

16. The method of claim 13 wherein determining if the user equipment of the calling party is GPS enabled comprises:

extracting calling party user equipment identification information from the call request;

retrieving a list of potential calling party user equipment for which the called party desires location information, the list including GPS enablement status information regarding the potential calling party user equipment.

17. The method of claim 13 wherein determining if the user equipment of the calling party is GPS enabled comprises:

 sending a GPS enablement query message to the user equipment of the calling party.

18. The method of claim 13 wherein requesting cellular triangulation services comprises:

 transmitting a plurality of PSM data collection messages to a respective plurality of cell sites within range of the user equipment of the calling party.

19. A system operative to include caller location information in information made available to user equipment of a called party, the system comprising:

 means for receiving a call request from the calling party;

 means for extracting called party identification information from the call request;

 means for determining that the called party subscribes to a caller location service based on the extracted called party identification information;

 means for determining a latitude and longitude of the calling party;

 means for determining a common description of a location of the calling party based on the latitude and longitude;

 means for including the common description of the location of the calling party in a message; and

 means for transmitting the message including the appended common description of the location to the user equipment of the called party.

20. The system of claim 19 wherein the means for determining that the called party subscribes to a caller location service comprises:

 means for accessing user subscription information of a subscriber database of the called party.

21. The system of claim 19 wherein the means for determining a latitude and longitude of the calling party comprises:

means for determining that the user equipment of the calling party includes a GPS receiver; and

means for requesting GPS coordinates from the user equipment of the calling party.

22. The system of claim 19 wherein the means for determining a latitude and longitude of the calling party comprises:

means for determining that the user equipment of the calling party does not include a GPS receiver; and

means for requesting coordinates of the calling party user equipment from a reference cell site of the user equipment of the calling party.

23. The system of claim 19 wherein the means for determining a latitude and longitude of the calling party comprises:

means for determining that the user equipment of the calling party does not include a GPS receiver; and

means for requesting coordinates of the calling party user equipment be determined by cellular triangulation.

24. The system of claim 22 further comprising:

means for transmitting a first PSMM_Request message from a first cell site to the user equipment of the calling party;

means for transmitting a first response to the first PSM message;

means for determining a first delay from the first response;

means for transmitting a second PSMM_Request message from a second cell site to the user equipment of the calling party;

means for transmitting a second response to the second PSM message;

means for determining a second delay from the second response;

means for transmitting a third PSMM_Request message from a third cell site to the user equipment of the calling party;

means for transmitting a third response to the third PSM message;

means for determining a third delay from the third response; and,

means for determining a relative position of the user equipment of the calling party to the first, second and third cell sites based on the first, second and third delays.

25. The system of claim 22 further comprising:
means for transmitting a plurality of PSMM_Request messages from a plurality of cell sites to the user equipment of the calling party;
means for transmitting a plurality of responses to the plurality of PSM messages;
means for determining a plurality of delays from the plurality of responses;
and,
means for determining a relative position of the user equipment of the calling party to the plurality of cell sites from the plurality of delays.

26. The system of claim 24 further comprising
means for calculating an absolute position of the user equipment of the calling party from the relative position of the user equipment and known positions of the first second and third cell sites.

27. The system of claim 25 further comprising
means for calculating an absolute position of the user equipment of the calling party from the relative position of the user equipment and known positions of the plurality of cell sites.

28. The system of claim 21 wherein the means for determining a common description of a location of the calling party comprises:
means for receiving the GPS coordinates; and
means for using the GPS coordinates as an index into a common location description database to determine at least one of an address, a city name, and a distance and heading from a landmark.

29. The system of claim 22 wherein the means for determining a common description of a location of the calling party comprises:
means for receiving the coordinates; and
means for using the coordinates as an index into a common location description database to determine at least one of an address, a city name, and a distance and heading from a landmark.

30. The system of claim 19 further comprising:
means for verifying that the calling party is included in a list of potential calling parties for which the called party desires location information.
31. A mobile switching center operative to provide calling party location information to user equipment of a called party, the mobile switching center comprising:
a coordinate determiner operative to determine geographic coordinates of user equipment of a calling party;
a coordinate converter operative to determine a common description of a geographic location associated with the geographic coordinates determined by the coordinate determiner; and,
a network interface operative to transmit the common description to the user equipment of the called party.
32. The mobile switching center of claim 31 wherein the coordinate determiner comprise:
a GPS coordinate determiner operative to send a request for GPS coordinates to the user equipment of the calling party and receive GPS coordinates from the user equipment of the calling party.
33. The mobile switching center of claim 31 wherein the coordinate determiner comprise:
a cellular triangulator operative to coordinate the collection of measurements associated with the user equipment of the calling party and the calculation of geographic coordinates associated with the location of the user equipment of the calling party based on the collected measurements.
34. The mobile switching center of claim 33 wherein the cellular triangulator is operative to collect the measurements associated with the user equipment through the transmission of a plurality of PSMM_Request messages.